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Sec: A7-B3

Roll no:46

```
#include <stdio.h>
```

```
void nextValue(int k, int n, int G[n+1][n+1], int x[n+1]);
```

```
void hamiltonian(int k, int n, int G[n+1][n+1], int x[n+1]) {
```

```
    while (1) {
```

```
        nextValue(k, n, G, x);
```

```
        if (x[k] == 0)
```

```
            return;
```

```
        if (k == n) {
```

```
            for (int i = 1; i <= n; i++)
```

```
                printf("%d ", x[i]);
```

```
            printf("%d\n", x[1]);
```

```
        } else {
```

```
            hamiltonian(k + 1, n, G, x);
```

```
        }
```

```
    }
```

```
}
```

```
void nextValue(int k, int n, int G[n+1][n+1], int x[n+1]) {
```

```
    int j;
```

```
    while (1) {
```

```
        x[k] = (x[k] + 1) % (n + 1);
```

```
        if (x[k] == 0)
```

```

        return;
    if (G[x[k - 1]][x[k]] != 0) {
        for (j = 1; j <= k - 1; j++)
            if (x[j] == x[k])
                break;
        if (j == k) {
            if ((k < n) || ((k == n) && G[x[n]][x[1]] != 0))
                return;
        }
    }
}
}
}
}

```

```

int main() {
    int n = 5;

    int G1[6][6] = {
        {0,0,0,0,0,0},
        {0,0,1,1,0,1},
        {0,1,0,1,1,0},
        {0,1,1,0,1,0},
        {0,0,1,1,0,1},
        {0,1,0,0,1,0}
    };

```

```

    int G2[6][6] = {

```

```

        {0,0,0,0,0,0},
        {0,0,1,1,0,1},
        {0,1,0,1,1,0},
        {0,1,1,0,1,1},
        {0,0,1,1,0,1},
        {0,1,0,1,1,0}
};

int x[6];
for (int i = 1; i <= n; i++)
    x[i] = 0;
x[1] = 1;

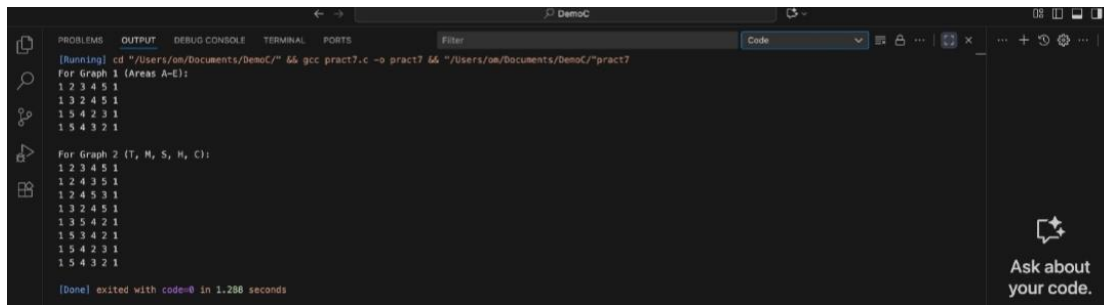
printf("For Graph 1 (Areas A-E):\n");
hamiltonian(2, n, G1, x);

for (int i = 1; i <= n; i++)
    x[i] = 0;
x[1] = 1;

printf("\nFor Graph 2 (T, M, S, H, C):\n");
hamiltonian(2, n, G2, x);

return 0;
}.

```



```
[Running] cd "/Users/om/Documents/DemoC/" && gcc pract7.c -o pract7 && "/Users/om/Documents/DemoC/"pract7
For Graph 1 (Areas A-E):
1 2 3 4 5 1
1 3 2 4 5 1
1 5 4 2 3 1
1 5 4 3 2 1

For Graph 2 (T, R, S, H, C):
1 2 3 4 5 1
1 2 4 3 5 1
1 2 4 5 3 1
1 3 2 4 5 1
1 3 5 4 2 1
1 5 3 4 2 1
1 5 4 2 3 1
1 5 4 3 2 1

[Done] exited with code=0 in 1.288 seconds
```

GitHub: <https://github.com/ghangaremanthan908-wq/Manthan23A>